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Parkinsonism Relat Disord. 2020 Mar;72:13-22. doi: 10.1016/j.parkreldis.2020.02.002. Epub 2020 Feb 11.

Effects of Working Memory Training in Patients With Parkinson's Disease Without Cognitive Impairment: A Randomized Controlled Trial

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Affiliations PMID: 32078917 DOI: 10.1016/j.parkreldis.2020.02.002

Abstract

Objective: To determine the feasibility and evaluate effects of a computerized working memory (WM) training (WMT) in patients with Parkinson's Disease (PD) on cognitive and clinical outcomes.

Methods: 76 patients with PD without cognitive impairment were randomized to either the WMT group (n = 37), who participated in a 5-week adaptive WMT, or a passive waiting-list control group (CG, n = 39). Patients underwent clinical and neuropsychological examination at baseline, after training, and at 3-months follow-up, with verbal WM and non-verbal WM as primary outcomes. Outcome assessors were blinded for group allocation.

Results: All WMT participants completed the training successfully and reported high levels of motivation for and satisfaction with the training. Repeated-measures, linear mixed-effects models revealed positive training effects for the WMT group compared to the CG in verbal working memory with a small relative effect size 0.39 [95%CI 0.05; 0.76] for the 3-months follow-up only. No other reliable training effects in cognitive and clinical variables were found for either point of time.

Conclusions: In this randomized controlled trial, WMT was feasible and yielded some evidence for 3months follow-up training gains in patients with PD. WMT might be an effective intervention to prevent cognitive decline in this patient group, however, more longitudinal studies with longer followup periods and more sensitive assessment tools will have to proof this concept.

Trial registration: German Clinical Trials Register (DRKS00009379).

Keywords: Non-pharmacological intervention; Parkinson's disease; Randomized controlled trial; Working memory training.

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